OhioEPA

Office of Pollution Prevention

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Mercury in the Household

What is Mercury?

Mercury is an element that occurs naturally in the earth's surface. It is used in many household products. Mercury conducts electricity, expands uniformly with temperature and easily forms bonds with other metals. At room temperature, mercury is a liquid. Mercury does not degrade and is not destroyed by combustion. It cycles between soils, the atmosphere and surface waters. It accumulates in tissue and is toxic. Its toxicity can endanger living organisms and can produce adverse health effects to humans. Mercury use and pollution should be prevented wherever possible.

Pathways to the Environment

Humans release mercury into the environment in several ways, including:

- product use and disposal;
- processing ores and manufacturing products;
- incinerating medical waste;
- municipal waste combustion; and
- burning fossil fuels for energy.

Once mercury is released into the atmosphere, it can travel long distances, settle on soil and wash into lakes and rivers and deposit in the sediments.

Mercury in lakes and rivers is converted into methylmercury by certain bacteria. Fish ingest methylmercury by swimming or feeding in contaminated water. Methylmercury accumulates in fish tissue and is carried up the food chain to larger fish, animals and humans. Methylmercury is more dangerous than elemental mercury because the concentration of methylmercury increases as it goes up the food chain.

Many lakes and streams in Ohio and waterways in neighboring Great Lakes states have fish consumption advisories due to high levels of mercury. According to the Ohio Department of Health, there is a statewide mercury advisory for women of childbearing age and children age six and under. These groups are advised not to eat more than one fish meal per week from any Ohio water body, and not more than one fish meal per month for any body of water where mercury is a noted contaminant.

Health Effects

Mercury is absorbed through the skin, inhaled or ingested. Symptoms of exposure to low doses of mercury include muscle tremors, irritability, and immune system dysfunction. High exposure may cause vision, speech and hearing impairment, respiratory problems, and possibly even death. Young children and fetuses are at the greatest risk because their nervous systems are still developing. Damage before birth or in infancy causes late development of walking, talking and possible lifelong learning problems. Kidneys can sometimes remove mercury without adverse health affects. For

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more information on mercury poisoning, visit Ohio Department of Health's Web site at: **www.odh.state.oh.us/public/public-f.htm**.

Household Mercury

Mercury is used in a wide variety of household products, including paint, thermometers, thermostats, batteries, fluorescent lamps, disinfectants, antiseptics, diuretics and preservatives. These items release mercury into the environment and home when broken, mishandled or disposed. Proper care is important when dealing with mercury-containing products. If spilled, mercury absorbs into many household materials while slowly evaporating into the air over time, allowing for exposure. Knowing what products and items contain mercury and handling them properly will limit the risk of mercury exposure. Common products often have a simple and environmentally friendly alternative. Some examples are listed below.

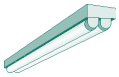
Thermometers

Mercury is used in thermometers because it expands and contracts evenly with temperature changes. Existing mercury-containing thermometers are safely recycled at the nearest recycling facility. Check with your local solid waste management district for local options. Alternatives include the electronic (digital) or red alcohol thermometers.

Household switches

Mercury conducts electricity and is used in many household and appliance switches. They are used in temperature-sensitive and mechanical (tilt) switches. Many of these switches are inside the appliance. Examples of appliances that have mercury switches include thermostats, clothing irons and top-loading freezers and washing machines. Some products, like thermostats are recycled through local recycling companies and new equipment vendors. Mechanical and electronic switches are available in mercury-free versions.

Household Lamps



Fluorescent, high intensity discharge (HID) and neon lamps contain mercury, often in vapor form. Mercury is released when bulbs are broken or incinerated. Fluorescent lamps are good energy savers, using up to 50 percent less electricity than incandescent lights. This energy savers reduces mercury emissions from power plants. Alternatives are labeled as low mercury lamps and often can be recognized by their green endcaps.

Batteries

Before 1980, most batteries used in homes contained mercury. Current mercury batteries are "button" shaped and are used in hearing aids, watches and other items requiring a small battery. In the last decade the United States battery industry achieved a 99 percent reduction in mercury by using alternative materials. Silver oxide, zinc-air, and alkaline batteries are the best alternatives for replacing batteries produced before 1994.

Paints

Latex paint produced before 1992 had large amounts of mercury to prevent fungus growth. Mercury vapors were released when paint was applied. Use latex paint manufactured after 1992.

Dental Amalgam

Mercury is used in dental fillings because it is durable, inexpensive and able to bond with some metals. The mixture of metals, or amalgam, is sometimes washed down a drain or incinerated. Amalgam discharged down a drain accumulates and remains in plumbing for a long

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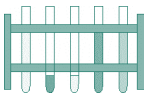
time. Alternative fillings are made of gold, porcelain, ceramic or plastics. Talk to your dentist about alternatives.

Old Chemistry Sets and Toys



Children's chemistry sets were once sold with liquid mercury. Some toys contain a drop of mercury that is moved through a maze, called a mercury maze. Check chemistry sets and toys to be sure they are mercury-free.

Lighted Athletic Shoes

Some athletic shoes with flashing lights in the soles contain mercury. Some states have banned the sale of these shoes. Newer shoes are mercury-free.

Pesticides

Fungicides and biocides produced before 1994 used mercury toxins to kill fungus, weeds and other pests. Most new pesticides are mercury-free.

Clothing Irons

Some irons have an automatic shut-off switch containing mercury. Irons with mercury-free automatic shut-off switches are available.

Antiseptics

Mercurichrome is a skin antiseptic used to treat cuts and abrasions. It is not commonly used. Mercury-free alternatives include Neosporin and Mycin. Thimerosal is used in antiseptic creams and as preservatives in pharmaceutical solutions including contact lens solutions. Mercury-free products are substituted, when available. Talk to your pharmacist about alternatives.

Blood Pressure Gauges

Home blood pressure gauges contain up to 70 grams (almost 1.5 pounds) of mercury. An aneroid blood-pressure unit is a mercury-free option.

Barometers

A barometer is an instrument used to measure pressure in the atmosphere that contains liquid mercury. A Bourdon tube gauge is an alternative to mercury-containing barometers.

Microwave Ovens

Mercury vapor bulbs were used in older microwave ovens. However, new models do not contain mercury.

Energy Efficiency

Electric generators create the greatest source of mercury emissions in the U.S. Generators that use energy efficient products and practices reduce the amount of mercury they release. Choose electric service based on the cleanest production process available. Consider non-fossil fuel electricity, low mercury-coal or more efficient production processes with fossil fuels when possible.

Source Reduction, Recycling and Disposal

Pollution prevention examines the causes of waste and pollution to figure out the best way to reduce it. Pollution prevention means avoiding making pollution at the source rather than trying to control it afterwards. This is also called "source reduction." Always reduce waste before recycling. Avoid products containing mercury if substitutes are available. Mercury, thermostats, batteries, thermometers and fluorescent lights are some products that can be safely recycled. Mercury recycling companies are listed

on Ohio EPA's Web page under the Office of Pollution Prevention at: **www.epa.state.oh.us/opp/recyc/mercrec.html**.

Household products such as older latex paints and some pesticides contain substantial amounts of mercury. These items can be disposed through a community household hazardous waste collection program.

Mercury spills

Monitoring and maintaining mercury products in your home and learning what chemicals are in them will help reduce risks. It is important to carefully clean up spilled mercury. The safest and best way to clean up a mercury spill is by hiring a licensed professional contractor. If you plan to clean up the mercury yourself, contain the substance using towels to divert the spill from drains, cracks or crevices. Use a medicine dropper to collect liquid mercury. Place the collected mercury and the medicine dropper in an air tight jar. Mercury and its vapors are very difficult to remove from items such as clothes, carpet, floors, walls, and furniture. Keep people and pets away from the area to prevent them from inhaling it, since mercury can evaporate quickly. Turn off heating and air conditioning systems to avoid circulating contaminated air to other rooms, and ventilate the spill area to the outdoors.

Once the spill is contained, place jars, all towels and all clothing that comes into contact with the mercury into a trash bag. Carefully take the trash bag to a hazardous waste drop off site or qualified mercury recycler. Wash the area to remove any residue. A shower is recommended for anyone coming into contact with the mercury. Ask your doctor if any further medical attention is necessary.

Proper disposal and recycling is vital to ensure human and environmental health. Never vacuum a household mercury spill. This contaminates the vacuum and circulates some mercury into the air. Do not use brooms or paintbrushes to clean up, since mercury will disperse into smaller beads. When disposing mercury, never pour it down a drain. This leaves the hazard in the environment and can lead to further exposure. Never walk around wearing shoes or clothing that was contaminated with mercury, since it is absorbed in cloth and easily spread from one place to another. Contact your local fire department or the Ohio Environmental Protection Agency Spill Hotline at **(800) 282-9378** for more information on cleaning up a spill.

More information on mercury may be found at: **www.epa.state.oh.us/opp/mercury_pbt.html**.

www.epa.state.oh.us/opp

The Office of Pollution Prevention was created to encourage multi-media pollution prevention activities in Ohio to reduce risk to public health, safety, welfare and the environment. Pollution prevention stresses source reduction and, as a second choice, environmentally sound recycling while avoiding cross media transfers. The Office develops information related to pollution prevention, increases awareness of pollution prevention opportunities, and can offer technical assistance to business, government, and the public.

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